CLAIMS FOR FILING IN THE US:

1. Data defining a phoneme and word lattice, the data comprising:

data for defining a plurality of nodes within the lattice and a plurality of links connecting the nodes within the lattice;

data associating a plurality of phonemes with a respective plurality of links; and

data associating at least one word with at least one of said links.

2. Data according to any preceding claim, wherein said data defining said phoneme and word lattice is arranged in blocks of nodes.

3. Data according to claim 1, further comprising data defining time stamp information for each of said nodes.

4. Data according to claim 3, arranged in blocks of equal time duration.

5. Data according to claim 2, further comprising data defining each blocks location within said database.

6. Data according to claim 3, wherein said data defining a phoneme and word lattice is associated with further data defining a time sequential signal, and wherein said time stamp information is time synchronised with said time sequential signal.

7. Data according to claim 6, wherein said further data defines an audio and/or video signal.

8. Data according to claim 7, wherein said further data

defines at least speech data and wherein said data defining said phoneme and word lattice is derived from said further data.

9. Data according to claim 8, wherein said speech data comprises audio data and wherein said data defining said phoneme and word lattice is derived by passing said audio signal through an automatic speech recognition system.

10. Data according to claim 8, wherein said speech data defines the parol of a plurality of speakers, and wherein said data defines a separate phoneme and word lattice for the parol of each speaker.

11. Data according to claim 1, further comprising data defining a weighting for the phonemes and/or words associated with said links.

12. Data according to claim 1, wherein at least one of said nodes is connected to a plurality of other nodes by a plurality of links.

13. Data according to claim 12, wherein at least one of said plurality of links connecting said node to said plurality of other nodes is associated with a phoneme and wherein at least one of said links connecting said node to said plurality of other nodes is associated with a word.

14. A method of searching a database comprising data according to any preceding claim, in response to an input query, the method comprising the steps of:

generating phoneme data and/or word data corresponding to the input query;

searching the phoneme and word lattice using the

phoneme and/or word data generated for the input query; and

outputting search results in dependence upon the results of said searching step.

15. A method according to claim 14, wherein said searching step comprises the steps of:

(i) searching the phoneme and word lattice using the word data generated for the user's input query to identify similar words within the phoneme and word lattice;

(ii) selecting one or more portions of the phoneme and word lattice for further searching in response to the results of said word search; and

(iii) searching said one or more selected portions of the phoneme and word lattice using the phoneme data generated for the user's input query.

16. A method according to claim 15, wherein the results of the word search are output to the user before the phoneme search is performed on the selected portions of the database.

17. A method according to claim 16, wherein said phoneme search is only performed in response to a further input by the user in response to the outputting of the results from the word search.

18. A method according to claim 15, wherein said phoneme search is carried out by identifying a number of features within the phoneme sequence corresponding to the user's input query and identifying similar features within the data defining said phoneme lattice within the database.

19. A method according to claim 18, wherein each of said

features represents a unique sequence of phonemes within the phoneme data of the user's input query.

20. A method according to claim 19, wherein said phoneme search employs a cosine measure to indicate the similarity between the phoneme data corresponding to the user's input query and the phoneme data within the database.

21. A method according to claim 14, wherein said search results are output to a display.

22. A method according to claim 14, wherein said input query by the user is input by voice, and wherein said step of generating phoneme data and word data employs an automatic speech recognition system.

23. A method according to claim 14, wherein said input query is a typed input and wherein said step of generating phoneme data and word data employs a text-to-phoneme converter.

24. An apparatus for searching a database comprising data according to claim 1, in response to an input query, the apparatus comprising:

means for generating phoneme data and/or word data corresponding to the input query;

means for searching the phoneme and word lattice using the phoneme and/or word data generated for the input query; and

means for outputting search results in dependence upon the output from said searching means.

25. An apparatus according to claim 24, wherein said searching means comprises:

(i) means for searching the phoneme and word lattice using the word data generated for the user's input query to identify similar words within the phoneme and word lattice;

(ii) means for selecting one or more portions of the phoneme and word lattice for further searching in response to the results of said word search; and

(iii) means for searching said one or more selected portions of the phoneme and word lattice using the phoneme data generated for the user's input query.

26. An apparatus according to claim 25, wherein said output means is operable to output the results of the word search to the user before the phoneme search is performed on the selected portions of the database.

27. An apparatus according to claim 26, wherein said phoneme search is only performed in response to a further input by the user in response to the outputting of the results from the word search.

28. An apparatus according to claims 25, wherein said phoneme search is carried out by identifying a number of features within the phoneme sequence corresponding to the user's input query and identifying similar features within the data defining said phoneme lattice within the database.

29. An apparatus according to claim 28, wherein each of said features represents a unique sequence of phonemes within the phoneme data of the user's input query.

30. An apparatus according to claim 29, wherein said phoneme search employs a cosine measure to indicate the similarity between the phoneme data corresponding to the

user's input query and the phoneme data within the database.

31. An apparatus according to claim 24, wherein said output means comprises a display.

32. An apparatus according to claim 24, wherein said input query by the user is a voice query, and wherein said means for generating phoneme data and word data comprises an automatic speech recognition system which is operable to generate said phoneme data and a word decoder which is operable to generate said word data.

33. An apparatus according to claim 24, wherein said input query is a typed query and wherein said means for generating phoneme data and word data comprises a text-to-phoneme converter which is operable to generate said phoneme data.

34. An apparatus for generating annotation data for use in annotating a data file comprising audio data, the apparatus comprising:

an automatic speech recognition system for generating phoneme data for audio data in the data file;

a word decoder for identifying possible words within the phoneme data generated by the automatic speech recognition system; and

generating means for generating annotation data by combining the generated phoneme data and the decoded words.

35. An apparatus for generating annotation data for use in annotating a data file comprising text data, the apparatus comprising:

a text to phoneme converter for generating phoneme

data for text data in the data file; and

generating means for generating annotation data by combining the phoneme data and words in the text data.

36. An apparatus for generating annotation data for use in annotating a data file, the apparatus comprising:

input means for receiving an input voice signal;

speech recognition means for converting the input voice signal into phoneme data and words; and

generating means for generating annotation data by combining the phoneme data and the words.

37. An apparatus for generating annotation data for use in annotating a data file, the apparatus comprising:

input means for receiving a typed input from a user;

converting means for converting words in the typed input into phoneme data; and

generating means for generating annotation data by combining the phoneme data and words in the typed input.

38. An apparatus for generating annotation data for use in annotating a data file, the apparatus comprising:

means for receiving image data representative of text;

character recognition means for converting said image data into text data;

converting means for converting words in the text data into phoneme data; and

generating means for generating annotation data by combining the phoneme data and words in the text data.

39. An apparatus according to claim 34, wherein said annotation data defines a phoneme and word lattice and wherein said generating means comprises:

(i) means for generating data defining a plurality

of nodes within the lattice and a plurality of links connecting the nodes within the lattice;

(ii) means for generating data associating a plurality of phonemes of the phoneme data with a respective plurality of links; and

(iii) means for generating data associating at least one of the words with at least one of said links.

40. An apparatus according to claim 39, wherein said generating means is operable to generate said data defining said phoneme and word lattice in blocks of said nodes.

41. An apparatus according to claim 39, wherein said generating means is operable to generate data defining time stamp information for each of said nodes.

42. An apparatus according to claim 41, wherein said generating means is arranged to generate said phoneme and word lattice data in blocks of equal time duration.

43. An apparatus according to claim 40, wherein said generating means is operable to generate data which defines each block's location within a database.

44. An apparatus according to claim 41, wherein said data file includes a time sequential signal, and wherein said generating means is operable to generate time stamp data which is time synchronised with said time sequential signal.

45. An apparatus according to claim 44, wherein said time sequential signal is an audio and/or video signal.

46. An apparatus according to claim 34, wherein said

audio data includes audio data which defines the parol of a plurality of speakers, and wherein said generating means is operable to generate data which defines separate phoneme and word annotation data for the parol of each speaker.

47. An apparatus according to claim 35, wherein said text data defines the parol of a plurality of speakers, and wherein said generating means is operable to generate data defining separate phoneme and word annotation data for the parol of each speaker.

48. An apparatus according to claim 34, wherein said speech recognition system is operable to generate data defining a weighting for the phonemes in the phoneme data.

49. An apparatus according to claim 34, wherein said word decoder is operable to generate data defining a weighting for the words identified within said phoneme data.

50. An apparatus according to claim 39, wherein said means for generating data defining a plurality of nodes and a plurality of links is operable to define at least one node which is connected to a plurality of other nodes by a plurality of links.

51. An apparatus according to claim 50, wherein at least one of said plurality of links connecting said node to said plurality of other nodes is associated with a phoneme and wherein at least one of said links connecting said node to said plurality of other nodes is associated with a word.

52. An apparatus according to claim 36, wherein said speech recognition means is operable to generate data defining a weighting for the phonemes in the phoneme data.

53. An apparatus according to claim 52, wherein said speech recognition means is operable to generate data defining a weighting for the words within the word data.

54. An apparatus according to claim 36, further comprising means for associating said annotation data with said data file.

55. An apparatus according to claim 37, wherein said converting means comprises an automatic phonetic transcription unit which generates said phoneme data from words within the typed input.

56. An apparatus according to claim 38, wherein said converting means comprises an automatic phonetic transcription unit which generates said phoneme data from words within the text data output by said character recognition means.

57. An apparatus according to claim 38, further comprising means for associating said annotation data with either said image data representative of said text or with said text data.

58. An apparatus according to claim 38, wherein said receiving means comprises a document scanner or a facsimile machine.

59. A method of generating annotation data for use in annotating a data file comprising audio data, the method

comprising the steps of:

using an automatic speech recognition system to generate phoneme data for audio data in the data file;

using a word decoder to identify possible words within the phoneme data generated by the automatic speech recognition system; and

generating annotation data by combining the generated phoneme data and the decoded words.

60. A method of generating annotation data for use in annotating a data file comprising text data, the method comprising the steps of:

using a text to phoneme converter to generate phoneme data for text data in the data file; and

generating annotation data by combining the phoneme data and words in the text data.

61. A method of generating annotation data for use in annotating a data file, the method comprising the steps of:

receiving an input voice signal;

processing the input voice signal using a speech recognition system to generate phoneme data and word data for the input voice signal; and

generating annotation data by combining the phoneme data and the word data generated for the input voice signal.

62. A method of generating annotation data for use in annotating a data file, the method comprising the steps of:

receiving a typed input;

converting words in the typed input into phoneme data; and

generating annotation data by combining the phoneme

data and words in the typed input.

63. A method of generating annotation data for use in annotating a data file, the method comprising the steps of:

receiving image data representative of text;

converting said image data into text data using a character recognition unit;

converting words in the text data into phoneme data; and

generating annotation data by combining the phoneme data and words within the text data.

64. A method according to claim 59, wherein said annotation data defines a phoneme and word lattice and wherein said generating step comprises the steps of:

(i) generating data defining a plurality of nodes within the lattice and a plurality of links connecting the nodes within the lattice;

(ii) generating data associating a plurality of phonemes of the phoneme data with a respective plurality of links; and

(iii) generating data associating at least one of the words with at least one of said links.

65. A method according to claim 64, wherein said generating step generates said data defining said phoneme and word lattice in blocks of said nodes.

66. A method according to claim 64, wherein said generating step generates data defining time stamp information for each of said nodes.

67. A method according to claim 66, wherein said generating step generates said phoneme and word lattice

data in blocks of equal time duration.

68. A method according to claim 65, wherein said generating step generates data which defines each block's location within a database.

69. A method according to claim 66, wherein said data file includes a time sequential signal, and wherein said generating step generates time stamp data which is time synchronised with said time sequential signal.

70. A method according to claim 69, wherein said time sequential signal is an audio and/or video signal.

71. A method according to claim 59, wherein said audio data includes audio data which defines the parol of a plurality of speakers, and wherein said generating step generates data which defines separate phoneme and word annotation data for the parol of each speaker.

72. A method according to claim 60, wherein said text data defines the parol of a plurality of speakers, and wherein said generating step generates data defining separate phoneme and word annotation data for the parol of each speaker.

73. A method according to claim 59, wherein said speech recognition system generates data defining a weighting for the phonemes associated with said links.

74. A method according to claim 59, wherein said word decoder generates data defining a weighting for the words associated with said links.

75. A method according to claim 64, wherein said step of

defining a plurality of nodes and a plurality of links defines at least one node which is connected to a plurality of other nodes by a plurality of links.

76. A method according to claim 75, wherein at least one of said plurality of links connecting said node to said plurality of other nodes is associated with a phoneme and wherein at least one of said links connecting said node to said plurality of other nodes is associated with a word.

77. A method according to claim 61, wherein said speech recognition system generates data defining a weighting for the phonemes associated with said links.

78. A method according to claim 61, wherein said speech recognition system generates data defining a weighting for the words associated with said links.

79. A method according to claim 61, further comprising the step of associating said annotation data with said data file.

80. A method according to claim 62, wherein said converting step uses an automatic phonetic transcription unit which generates said phoneme data for words within the typed input.

81. A method according to claim 63, wherein said step of converting words into phonemes uses an automatic phonetic transcription unit which generates said phoneme data for words within the text data output by said character recognition unit.

82. A method according to claim 63, further comprising

the step of associating said annotation data with either said received image data or with said text data.

83. A method according to claim 63, wherein said receiving step uses a document scanner or a facsimile machine.

84. A method of searching a data file including annotation data in response to an input query, the method comprising the steps of:

generating phoneme data and word data corresponding to the input query;

searching the data file based on the phoneme data and/or the word data and the annotation data; and

outputting search results in dependence upon the result of said searching step.

85. A method according to claim 84, wherein said annotation data defines a phoneme and word lattice comprising:

(i) data for defining a plurality of nodes within the lattice and a plurality of links connecting the nodes within the lattice;

(ii) data for associating a plurality of phonemes of the phoneme data with a respective plurality of links; and

(iii) data for associating at least one word with at least one of said links.

86. A method for storing a data file into a database, the method comprising the steps of:

combining the data file with annotation data corresponding to the data file, the annotation data including phoneme data; and

storing the data file with the annotation data.

87. An apparatus for searching a data file including annotation data, in response to an input query, the apparatus comprising:

means for generating phoneme data and word data corresponding to the input query;

means for searching a data file based on the phoneme data and/or the word data and the annotation data; and

means for outputting a search result in dependence upon the result of said searching means.

88. An apparatus according to claim 87, wherein said annotation data defines a phoneme and word lattice, and comprises:

(i) data defining a plurality of nodes within the lattice and a plurality of links connecting the nodes within the lattice;

(ii) data associating a plurality of phonemes of the phoneme data with a respective plurality of links; and

(iii) data associating at least one word with at least one of said links.

89. An apparatus for storing a data file into a database, the apparatus comprising:

means for inputting the data file and annotation data corresponding to the data file, the annotation data including phoneme data; and

means for storing the data file with the annotation data.

90. A medium for storing a data file, the data file comprising:

an audio data; and

an annotation data corresponding to the audio data, said annotation data including phoneme data.

91. A medium for storing a data file, the data file comprising:

video data;

audio data corresponding to the video data; and

annotation data corresponding to the audio data, the annotation data including phoneme data.

92. A medium for storing a data file, the data file comprising:

text data; and

annotation data corresponding to the text data, said annotation data including phoneme data.

93. Data including audio data and further comprising annotation data corresponding to the audio data, which annotation data includes phoneme data.

94. Data including video data and further comprising audio data corresponding to the video data and annotation data corresponding to the audio data, which annotation data includes phoneme data.

95. Data including text data, the data further comprising annotation data corresponding to the text data, which annotation data includes phoneme data.

96. A data carrier carrying data according to claim 1 or processor implementable instructions for controlling a processor to implement the method of claim 14 or 59 or 84.

97. Processor implementable instructions for controlling a processor to implement the method of claim 14 or 59 or 84.